

### **REMARKS/ARGUMENTS**

The Examiner has held that claims 1 – 7 and 22 are drawn to an invention that is independent or distinct from the invention in the originally presented claims and has withdrawn them from consideration as being directed to a non-elected invention. These claims have been cancelled from this application and will be pursued in a divisional application. Thus, the claims remaining in this application are claims 23 – 30 which are directed to a solid support.

The Examiner has entered a rejection of claims 23 – 30 as being obvious from Bertrand et al. WO 2002/098926 in view of Guiseppi-Elie US 5,766,934. Applicant requests reconsideration by the Examiner and withdrawal of this ground of rejection for the reasons given below.

Bertrand et al. discloses a process for depositing by electrografting a strong adherent polymer coating on an electrically conductive surface comprising an electrochemical grafting at the surface of an active monomer comprising a reactive functional group for attachment of a molecule having at least one complementary reactive group. The electrografted coatings of polymers disclosed in Bertrand et al. allows the attachment of small molecules such as proteins, peptides, oligonucleotides, dyes, drugs and anti-bacterian compounds.

However, Bertrand et al. does not mention a specific method for encapsulating biocompatible polymers involving the use of a solid support with at least 90% of functional groups of interest accessible for the formation of a covalent, ionic or hydrogen bond with a complementary group, and in which the accessible functional groups of interest density is between  $10^4/\mu\text{m}^2$  and  $10^{10}/\mu\text{m}^2$  in order to attach macromolecules having complex three-dimensional structures, which are usually difficult to attach to electrically conducting surfaces, and in particular to metals.

The advantages resulting from the support of the present invention are demonstrated by Example 6 and Example 13, which show that the attachment of macromolecules having complex three-dimensional structures such as polysaccharides (i. e. hydroxyethylellulose in Example 6 and a functionalized dextrane in Example 13) is possible thanks to the great accessibility of the functional groups of interest on the electrografted coating used in the claimed support.

The solid support of independent claim 23 differs from Bertrand et al. by the following characteristics:

the use of monomeric species which do not contain reactive functional groups,  
the number of functional groups of interest accessible for the formation of a covalent, ionic or hydrogen bond with a complementary group representing at least 90% of the total number of functional organic groups of interest, and  
the density of the accessible functional groups of interest being between  $10^4/\mu\text{m}^2$  and  $10^{10}/\mu\text{m}^2$ .

None of the prior art references cited by the Examiner teaches the specific number of functional groups of interest accessible of at least 90%, nor the density of these accessible functional groups of interest between  $10^4/\mu\text{m}^2$  and  $10^{10}/\mu\text{m}^2$  as specified in the claims, in order to accelerate the post-functionalization reactions compared to those currently available. Nor do the references teach improving the inorganic / organic interface between the functionalized electrically conducting or semiconducting support and the functional molecules of interest.

Indeed, the presence of at least 90% of the total number of functional organic groups of interest, in combination with the specified density of the accessible functional groups of interest, provide a solid support showing significant advantages, with conducting or semiconducting electrically functionalized surfaces with organic layers having a large variety of functional groups, and a large number of functional groups of interest accessible per surface unit, so as to ensure faster post-functionalization reactions than those currently available.

Consequently, the combination of features specified in claim 23 was not obvious to a person of ordinary skill in the art, since none of the cited prior art documents disclose or suggest such a combination to obtain such an advantageous solid support.

Reconsideration by the Examiner, withdrawal of the outstanding rejection, and formal notification of the allowability of the claims as now present are requested.

It is not believed that extensions of time or fees for net addition of claims are required, beyond those that may otherwise be provided for in documents accompanying this paper. However, in the event that additional extensions of time are necessary to allow consideration of this paper, such extensions are hereby petitioned under 37 CFR § 1.136(a), and any fee required

Appl. No.: 10/518,923  
Amdt. dated October 1, 2009  
Reply to Office Action of July 20, 2009

therefor (including fees for net addition of claims) is hereby authorized to be charged to Deposit  
Account No. 16-0605.

Respectfully submitted,



Raymond O. Linker, Jr.  
Registration No. 26,419

**Customer No. 00826**  
**ALSTON & BIRD LLP**  
Bank of America Plaza  
101 South Tryon Street, Suite 4000  
Charlotte, NC 28280-4000  
Tel Charlotte Office (704) 444-1000  
Fax Charlotte Office (704) 444-1111

**ELECTRONICALLY FILED USING THE EFS-WEB ELECTRONIC FILING SYSTEM OF THE UNITED STATES PATENT &  
TRADEMARK OFFICE ON October 1, 2009.**